CLAIMS

1. A network device comprising:

at least one control processor;

at least one forwarding processor;

at least one ingress interface for connecting the network device to a network; and

a virtual interface interposed between the control processor and the ingress interface, said virtual interface being constructed and arranged to receive a packet from the ingress interface, determine if it is compatible with an operating system running on the control processor, and, if necessary, convert it to a compatible format for the operating system.

2. The network device of claim 1 wherein said network device comprises a router.

3. The network device of claim 1 wherein said network device comprises a switch.

4. The network device of claim 1 wherein said network device is configured to run different operating systems on said control processor and said forwarding processor.

5. The network device of claim 1 wherein said virtual interface is further constructed and arranged to receive a packet from the control processor, determine if it is compatible with an operating system running on the forwarding processor, and, if necessary, convert it to a compatible format for the forwarding-processor operating system.

6. The network device of claim 1 wherein said network device further includes at least one egress interface for connecting the network device to a network and wherein said network device further comprises a packet handler constructed and arranged to direct a packet from the control processor to a selected egress interface.

7. The network device of claim 1 wherein said module is further constructed and arranged to select an appropriate control processor input port to receive the packet.

8. The network device of claim 1 wherein said network device includes at least two control processors running different protocol stacks and wherein said network device further includes a packet handler interposed between the forwarding processor and the ingress interface, said packet handler being constructed and arranged to receive a packet from the ingress interface, determine if it is bound for one of the control processors, and, if so, direct it to said one control processor.

9. A network device comprising:

at least two control processors running different protocol stacks;

at least one forwarding processor;

at least one ingress interface for connecting the network device to a network; and

a packet handler interposed between the forwarding processor and the ingress interface, said packet handler being constructed and arranged to receive a packet from the ingress interface, determine if it is bound for one of the control processors, and, if so, direct it to said one control processor.

10. The network device of claim 9 wherein said network device comprises a router.

11. The network device of claim 9 wherein said network device comprises a switch.

12. The network device of claim 9 wherein said network device is configured to run different operating systems on at least one of said control processors and said forwarding processor.

13. The network device of claim 9 wherein said network device further includes a virtual interface interposed between the control processor and the ingress interface, said virtual interace being constructed and arranged to receive a packet from the ingress interface, determine if it is compatible with an operating system running on the control processor, and, if necessary, convert it to a compatible format for the operating system.

14. The network device of claim 13 wherein said virtual interace is further constructed and arranged to receive a packet from the control processor, determine if it is compatible with an operating system running on the forwarding processor, and, if necessary, convert it to a compatible format for the forwarding-processor operating system.

15. The network device of claim 9 wherein said network device further includes at least one egress interface for connecting the network device to a network and wherein said network device further comprises a packet handler constructed and arranged to direct a packet from the control processor to a selected egress interface.

16. A method for operating a data network having control and forwarding elements comprising:

receiving a data packet at a device on the network;

determining if the packet is bound for a forwarding element or a control element;

determining whether the packet format is compatible with the element for which it is bound; and

if necessary, converting the format into one that is compatible with the element for which it is bound.

17. The method of claim 16 wherein said method further comprises forwarding the data packet to another device on the network.

18. The method of claim 16 wherein said method comprises routing the data packet.

19. The method of claim 16 wherein said forwarding and control elements comprise processors and wherein said method further comprises running one operating system on one of said processors and running a different operating system on the other processor.

20 A processing system comprising a processor, which when executing a set of instructions performs the method of claim 16.

21. A machine-readable medium having stored thereon instructions, which when executed performs the method of claim 16.